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Dr. Bezdek received his B.S. in civil engineering from the University of Nevada (Reno) in 1969, and his Ph.D. in applied mathematics from Cornell University in 1973. Currently, he is the director of the Information Processing Lab at the Boeing Electronics High Tech Center. Dr. Bezdek is the past president of NAFIPS, the current president of IFSA, and the editor of the International Journal of Approximate Reasoning. His research interests include pattern recognition, expert systems, information retrieval, and optimization.

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TRANSITIVE CLOSURES OF TRAPEZOIDAL FUZZY NUMBERS

Abstract

We present a theory for the representation and manipulation of uncertainties that might be supplied by an expert (or team thereof) about object-pair relationships in some knowledge domain. We propose a theory based on the representation of relational knowledge by semantic term sets and trapezoidal fuzzy numbers. The extended max - (*) linguistic transitive closure (LTC) is offered as a means for consistency enforcement and completion of partial knowledge in the relational network. Theorems are given that provide conditions for the existence and uniqueness of the LTC under three (extended) T-norms. We present an algorithm for computing each LTC and exhibit a number of features of this method through numerical examples.